Docket No.: KCC-16,208

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants:	Lawrence Howell SAWYER, et al.		
Serial No.:	09/939,061	Group No.:	3761
Filing Date:	24 August 2001	Examiner:	C. Anderson
Title:	THIN, HIGH CAPACITY ABSORBENT STRUCTURE AND METHOD FOR PRODUCING SAME		

Customer No. 35844

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APPELLANTS' REPLY BRIEF UNDER 37 CFR 41.41

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Dear Sir:

Appellants herewith file their Reply Brief in the above-identified case, in response to the Examiner's Answer mailed 05 April 2006. Appellants respectfully submit that the Examiner's assertions are incorrect as a matter of law and fact. Thus, for the reasons set forth below, Appellants respectfully request that this Board reverse the rejections of Claims 1-11, 15-30, 34-36, 58, 60, 61, and 63 under 35 U.S.C. §102(b) and Claims 12-14, 31-33, 37-39, and 57 under 35 U.S.C. §103(a).

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KCC-2083

MR/S

In the Examiner's Answer, the Examiner presented a new ground of rejection by broadening the rejection under 35 U.S.C. §102(b) presented in the final Office Action mailed 19 August 2005 to also include, in the alternative, a basis under 35 U.S.C. §103(a).

The Examiner additionally reiterated the original rejections under 35 U.S.C. §103(a) presented in the final Office Action mailed 19 August 2005, and then presented a response to Appellants' arguments presented in the Appeal Brief. Appellants reply to the Examiner's new ground of rejection and response as follows:

1. CLAIMS 1-11, 15-30, 34-36, 58, 60, 61, AND 63 ARE NOT ANTICIPATED BY OR OBVIOUS OVER *LAUX ET AL.*

Appellants' invention as recited in independent Claims 1 and 21 requires a single, ***densified*** layer of superabsorbent material and pulp fluff, wherein the densification or compaction of the absorbent pad results in a density greater than about 0.28 or 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters, ***and the densified layer has an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression***.

Laux et al. fail to disclose or suggest ***any*** densification of an absorbent pad. Furthermore, *Laux et al.* fail to disclose or suggest an absorbent pad that has been densified or compacted to a density greater than about 0.28 or 0.30 grams per cubic centimeter, and to a thickness in a range of between 0.5 and 3.0 millimeters. *Laux et al.* also fail to disclose or suggest an absorbent pad having an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression.

The *Laux et al.* reference is directed primarily to a distinctively elasticized barrier or containment system at a waistband portion of an article. *Laux et al.* include a broad, general description of an absorbent pad that may be included within the article. Consequently, some of the broad ranges in *Laux et al.* overlap the ranges recited in Appellants' claimed invention.

Laux et al. disclose an average composite basis weight within the range of about 400-900 gsm, and a bulk thickness that is not more than about 0.6 cm (6

mm), preferably not more than about 0.53 cm (5.3 mm), and more preferably not more than about 0.5 cm (5 mm). *Laux et al.* state that the density of the absorbent pad (i.e., the retention portion 48) can be calculated from its basis weight and thickness. What *Laux et al.* fail to disclose or suggest is any densification of the absorbent pad. While a high density can be calculated simply by selecting an improbably small thickness of the absorbent pad in combination with the given range of basis weight, there is no suggestion or motivation to create such a thin absorbent pad, particularly through densification. Despite the fact that the range of thickness is defined only by an upper limit, a person skilled in the art would recognize that a realistic lower range contemplated by *Laux et al.* would be closer to the upper range than to zero, unless the absorbent pad were densified, and *Laux et al.* provide no suggestion or motivation to densify the absorbent pad.

As explained on pages 4 and 5 of the subject application, **Appellants identified the problems associated with achieving an absorbent pad that is thin, flexible, and has a relatively large absorbent capacity.** More particularly, ***in order to achieve a thin pad, the absorbent capacity and/or flexibility is typically sacrificed.*** For example, **when absorbent pads are densified to create high capacity in a thin form, hard spots often develop within the pads, thereby resulting in stiffness and lack of uniformity of the absorbent material within the pads.** On the other hand, when thin pads are made having a lower density, the resulting pads may be flexible, but thin, low density pads have a low absorbent capacity. Low density, high capacity pads that are flexible are generally thick and bulky and look and feel cumbersome on the wearer.

Even if the absorbent pad in Laux et al. were densified to achieve a thickness within Appellants' claimed range of thickness, Laux et al. provide no suggestion or motivation to treat the absorbent pad to achieve flexibility within Appellants' claimed range of edge compression. As explained above, densification often results in stiffness. As explained by Appellants on pages 27-28 of the subject application, certain process steps may be used to reduce stiffness, such as humidifying the mixture of SAP and pulp fluff and/or embossing a pattern onto the absorbent pad. **Although these particular techniques are not recited in Appellants' claims,**

Appellants' claims do recite a range of flexibility (i.e., edge compression) that is not disclosed or suggested by *Laux et al.* In fact, *Laux et al.* disclose stiffness testing for determining the stiffnesses of the flange and pocket sections of the waist pocket member, but fail to disclose or suggest any importance relating to the stiffness (or flexibility) of the absorbent pad.

Even if the same superabsorbent material and pulp fluff were used to form both the *Laux et al.* absorbent pad and Appellants' claimed absorbent pad, the absorbent pad in Appellants' invention would still differ markedly from the *Laux et al.* absorbent pad ***because*** of the densification, as well as any additional flexibility-enhancing treatments. More particularly, the densification of the absorbent pad results in the balanced thinness, flexibility, and absorbent capacity recited in Appellants' claimed invention. Thus, this densification step imparts a distinctive structural characteristic to Appellants' final product, which can be quantified in terms of both density and edge compression values.

As explained at page 4, line 21 – page 5, line 6, of the present application, it is difficult to achieve thin absorbent composites that also have sufficient absorbent capacity and flexibility. Appellants' absorbent pad is thin (between 0.5 and 3.0 mm), has sufficient absorbent capacity (between about 14 and 40 g/g), and is flexible (edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression). These balanced properties are achieved through high levels of superabsorbent polymer (SAP) ***and high density compaction*** of the formed pads (page 13, lines 10-12).

Laux et al. fail to identify any desirability of achieving an absorbent pad that is thin, ***flexible***, and possesses sufficient absorbent capacity. *Laux et al.* also fail to disclose an absorbent pad that possesses these balanced properties. Additionally, *Laux et al.* fail to disclose an absorbent pad that is ***densified*** in any manner to achieve such thinness, flexibility, and absorbent capacity. More particularly, *Laux et al.* fail to disclose any compaction or densification of the absorbent pad 48, or any treatments that would increase the flexibility of the absorbent pad 48. Thus, it is unlikely that a person skilled in the art would achieve

Appellants' claimed densified, thin, flexible, absorbent pad through routine experimentation based on the teachings of *Laux et al.*

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

2. CLAIMS 12-14 AND 31-33 ARE NOT OBVIOUS OVER *LAUX ET AL.* IN VIEW OF *COLES.*

Neither *Laux et al.* nor *Coles*, alone or in combination, disclose or suggest a densified absorbent pad having an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression, and including superabsorbent material having a gel strength of at least 0.65, wherein the gel strength is determined by dividing 0.9 AUL capacity by CRC.

The term "gel strength" is used to refer to a different material property in *Coles* than in the present invention. *Coles* discloses a sanitary napkin that may include high gel strength absorbent gelling materials having an absorbent gel strength of more than 1.2 kPa after 5 minutes. Such absorbent gel strength, measured in kPa, is the measure of pressure or force against the gel, thus representing a mechanical modulus. In contrast, the ranges of absorbent gel strength disclosed in the present invention are *ratios* determined by dividing 0.9 AUL capacity by centrifuge retention capacity (CRC). More particularly, the gel strength values in Appellants' claimed invention are a ratio of the amount of liquid, i.e., saline, that the superabsorbent polymer (SAP) absorbed under no pressure versus the amount of liquid that the SAP absorbed under pressure. The gel strength in the present invention involves an absorbency under load factor which is more related to in-use performance. Although the same term "gel strength" is used in both the present application and in *Coles*, these terms represent completely different measurements of material properties.

The Examiner notes that Appellants' claims do not recite the method by which the gel strength is measured. Appellants' claims recite minimum gel strength values. **The broadest reasonable interpretation of Appellants' recited gel strength values must take into account the units of these values.** More

particularly, since these values are ratios, the recited values have no units. In contrast, the gel strength values in the *Coles* reference have units of "kPa after 5 minutes." ***Without reciting in the claims the method by which the gel strength is measured, it should be apparent to a person skilled in the art that the gel strength values recited in Appellants' claims and the gel strength values recited in the Coles reference are not analogous because of the inconsistent units between these values.***

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

3. CLAIMS 37-39 ARE NOT OBVIOUS OVER *LAUX ET AL.*

As explained above, *Laux et al.* fail to disclose or suggest a ***densified*** absorbent pad, particularly wherein the densification or compaction of the absorbent pad results in a density greater than about 0.28 or 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters, and further fail to disclose or suggest an absorbent pad having an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression. *Laux et al.* also fail to disclose or suggest any range of concentration variation of a superabsorbent material gradient within such an absorbent pad.

Since *Laux et al.* do not disclose or suggest a densified absorbent pad having an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression, *Laux et al.* thus fail to disclose or suggest such an absorbent pad having any variation of concentration of superabsorbent material within a gradient in such an absorbent pad.

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

4. CLAIM 57 IS NOT OBVIOUS OVER *LAUX ET AL.* IN VIEW OF *PIENIAK ET AL.*

As explained above, *Laux et al.* fail to disclose or suggest a ***densified*** absorbent pad, particularly wherein the densification or compaction of the absorbent pad results in a density greater than about 0.28 or 0.30 grams per cubic centimeter and a thickness in a range of between 0.5 and 3.0 millimeters, and further fail to disclose or suggest an absorbent pad having an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression. *Laux et al.* further fail to disclose or suggest such an absorbent pad having a higher basis weight in a first zone than in a second zone.

Pieniak et al. disclose an absorbent panel structure for a disposable garment that includes one or more longitudinally elongated areas or grooves of reduced thickness and basis weight formed in the panel. A rearward section of the panel has a mean basis weight that is less than the mean basis weight of the forward section of the panel.

Laux et al. and *Pieniak et al.*, in combination, fail to disclose or suggest all recited limitations of Claim 57. More particularly, neither *Laux et al.* nor *Pieniak et al.*, alone in combination, disclose or suggest a densified absorbent pad having an edge compression between about 2726 and about 3615 gm-cm of energy to 50% compression, with a higher basis weight in a first zone than in a second zone.

For at least the reasons presented above, Appellants respectfully request the Board to overturn this rejection.

5. APPELLANTS MAINTAIN THEIR POSITION IN ARGUMENTS I-IV IN THE APPEAL BRIEF.

The Examiner has indicated that she maintains the grounds of rejection presented on appeal. Likewise, Appellants maintain their position in arguments I-IV in the Appeal Brief. For at least the reasons presented in the Appeal Brief and as restated above, Appellants respectfully request the Board to overturn these rejections.

CONCLUSION

For the reasons presented above, Appellants respectfully submit that the Examiner's Answer does not overcome Appellants' Appeal Brief. Therefore, Appellants respectfully request that the Board reverse the rejections proposed by the Patent Office.

Respectfully submitted,

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